

# COAL MINING

DECEMBER, 1951

"The Picture-Book of the Industry"

VOLUME 28, NO. 12



At this holiday season, we of the Highway Equipment Company wish to express our sincere appreciation for your friendship during '51.

To you we extend our heartiest Season's Greetings

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Le Roi-CLEVELAND Jumbo equipped with long-feed drifters for use with carbide-insert bits.

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## *Drilling-Cycle Time Reduced, Footage per Shift Increased*

**... when you use Le Roi-CLEVELAND Jumbos  
and power-feed drifters in your rock headings**

**T**HERE are three things you have to do if you want to save time in your drilling cycle and increase your footage — reduce set-up time, drill out the round faster, and shorten tear-down time.

You know this and so do we. That's why we designed the Le Roi-CLEVELAND jumbo the way it is. And that's also why our drifters drill so fast.

Let's see what you get when you use Le Roi-CLEVELAND:

- ★ The most flexible jumbo available. Air-motor powered booms let you space your holes quickly and easily for most efficient fragmentation.
- ★ Rigid, non-slip set-up feature keeps drifters in line, prevents steel binding, saves wear and tear

on chucks, results in higher average drilling speeds.

- ★ Strong rotation, plus snappy yet powerful force of blow of Le Roi-CLEVELAND drifters gives you unexcelled drilling speed. This drilling speed coupled with the fast, positive feeding action of our power feed gives you the right pressure for fastest drilling and reduces drill-steel changing time.

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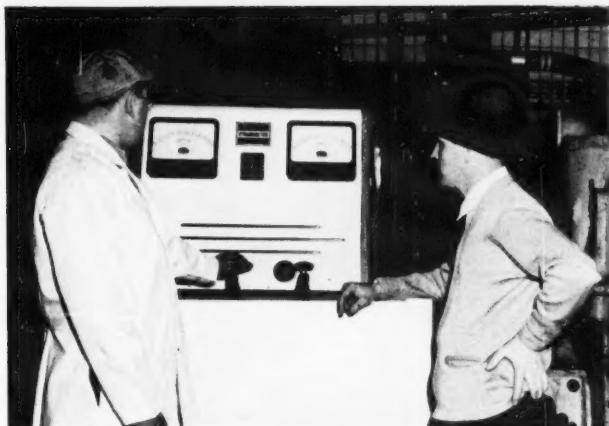
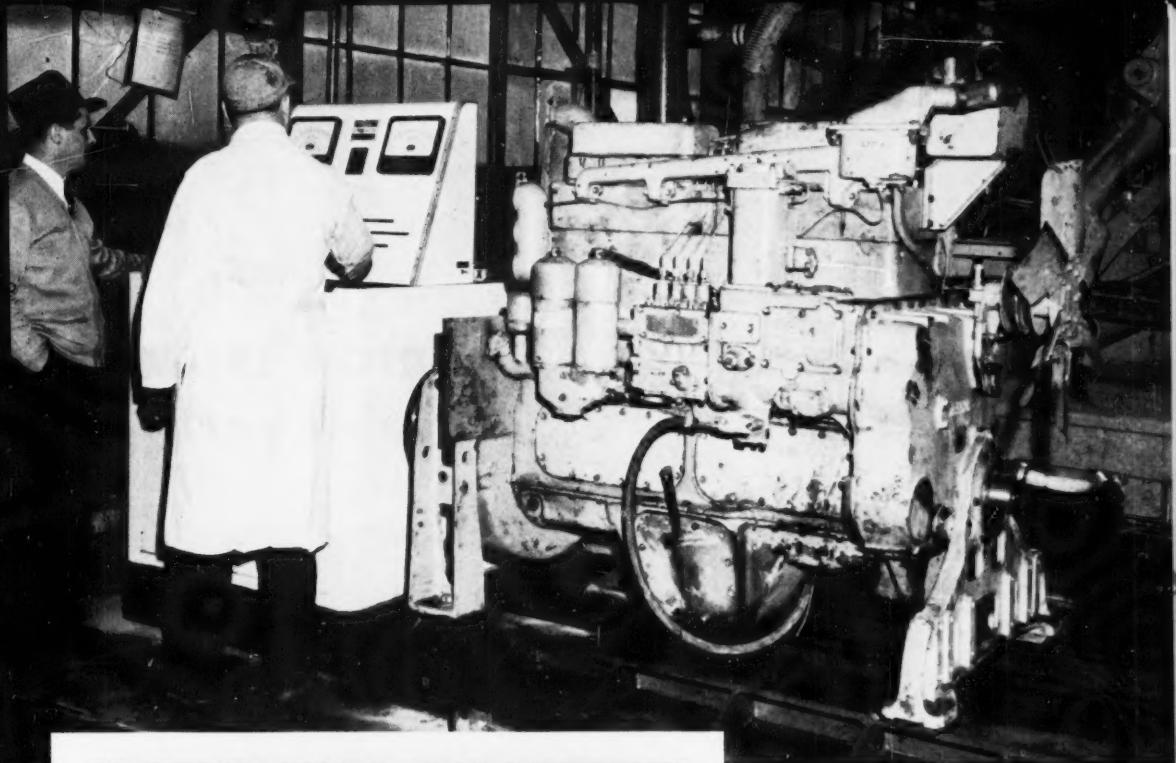
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We've installed this Turbo-Closed System Engine Dynamometer in our Pittsburgh Service Shop and are adding one in our Clearfield Plant. These dynamometers enable us to properly run-in rebuilt engines, and adjust them to factory specifications resulting in exact H.P. and R.P.M. for your requirements. They also aid in precision setting of new engine R.P.M. and Brake H.P. when necessary. This machine has eliminated field service calls for rechecking engines after installation — we know they're right! Actual load conditions are produced for testing purposes.

At left are two Beckwith Engine Experts, Pittsburgh Service Manager Clyde Kaltenbaugh and Technician Bill Hauck, checking speed and power ratings of a D7 engine.

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from 3/4 cu. yd.  
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## Material on Mining Bits



Proper instructions, vitally important to the correct use of carbide tools are available on mining machine bits, coal auger bits, strip bits, and

rock bits. They are thorough, time-tested, and reliable. Write Kennametal Inc., Latrobe, Pa., pioneers and world's largest manufacturers of cemented carbide mining tools.

A complete tool catalog is also available that gives specifications, prices, and performance data on Kennametal Mining Tools. Specify M-6. Any of the above material will be sent to you on request.

## New Bit Rotary Drills Bolt Holes in Laminated Sandstone

**Drills hundreds of feet in hard roof**



To give the greatest wear resistance in drilling hard roof, the Kennametal HFD Bit is tipped with a thick insert of Kennametal cemented carbide.

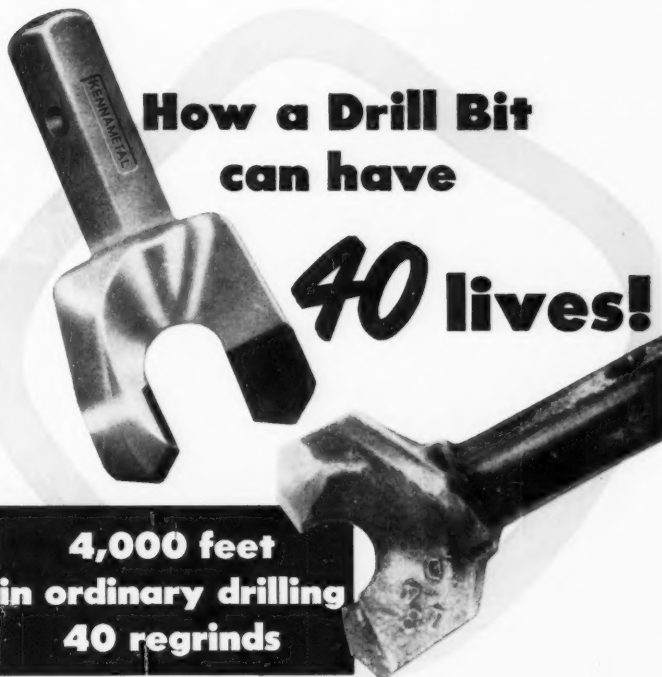
The bit fits into regular Kennametal Roof Bolting Rods. It is powered by ordinary electric drills. Material drilled with the bit is slate, shale, and laminated sandstone. The four main features of the bit are: (1) Smoother hole without rifling, (2) Longer gage life in hard roof, (3) Easy bit sharpening, (4) Lower bit cost than obtainable with any other bit used for drilling medium hard mine roof. Sizes are 1¼-inch to 2¼-inch, prices range between \$4.85 and \$14.80, depending upon size and quantity.

## Machine Bits Bore Rock



Six regular mining machine bits act as cutting teeth in this rigidly constructed bit used for rock boring. The "teeth" are set in a heavy cast steel

head. They are secured by set screws which allow them to be removed for sharpening when dulled. Drilling speeds are 3' to 3½' per minute in average drilling. Feature: Ability to drill hard rock formations. Style is UD 6½". The price, including bits, is \$45.10 to \$59.40 depending upon quantity.



Two things make it possible for a bit to achieve a fortieth life. One is its high quality Kennametal tungsten carbide cutting edge and another is the kind of maintenance that is given to it. Poor or improper maintenance is, in most instances, the reason for early fatality. Is your Kennametal Bit changed when it gets dull? Is it reground according to recommended sharpening methods? If not, then a forty-life bit is improbable, and cost sacrifices are made in terms of lower drilling speed, higher drill maintenance cost, higher bit cost.

Under average drilling conditions, where the drilling is largely done in coal with only minor quantities of impurities, the Kennametal Drill Bit can, if properly cared for, give 4,000 feet or more of service or a hundred or more feet of drilling per sharpening. If your performance is less, it may be advisable either to look carefully yourself to be sure the right precautions are being used or better, ask your Kennametal representative to give your procedures a once-over. He knows from daily experience the ways in which bit service can be improved. The way to get maximum life, 40 lives if you're in average coal, is to remove the bit when dull, sharpen it as per the instructions that are prescribed by your Kennametal representative. Kennametal Inc., Latrobe, Pa.

*Names and addresses of Kennametal representatives appear in your 1951 McGraw-Hill Mining Catalog.*



## GRINDING INSTRUCTIONS

For the best service life on your tungsten carbide mining tools, they should be reconditioned at regular intervals and according to proper procedures. Conserve bit life by following proper grinding techniques. Write today for a copy of our complete, fully-illustrated folder on proper bit maintenance.

# KENNAMETAL®



**DRILL BITS • MACHINE BITS • ROCK BITS • ROOF BITS**

*Bits for Every Cutting & Drilling Need*



May **T**he Yuletide Spirit recall  
the fond, **R**ich memories of  
Seasons past **A**nd bring new  
joys to be with you at **C**hristmas  
and throughout the coming **Y**ear.

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# COAL MINING

Vol. XXVIII December, 1951 No. 12

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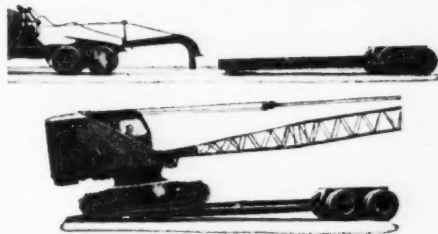
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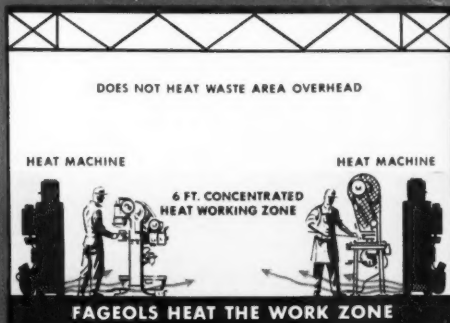
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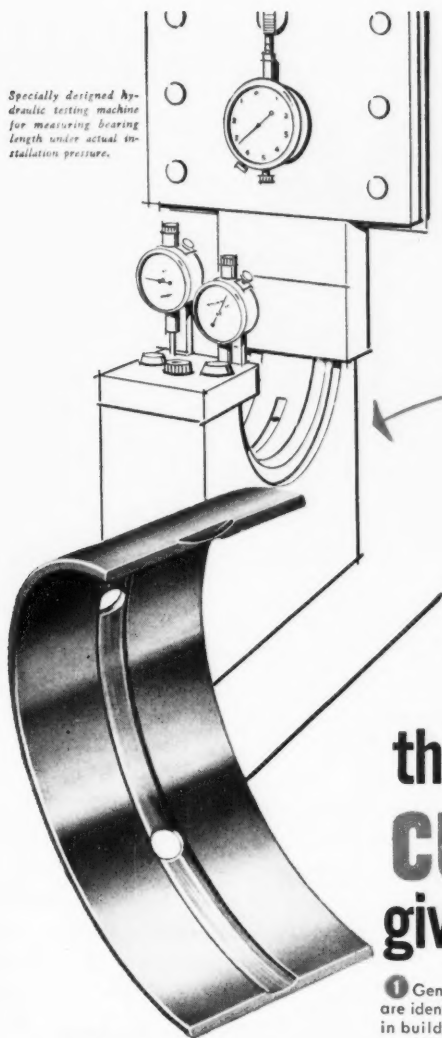
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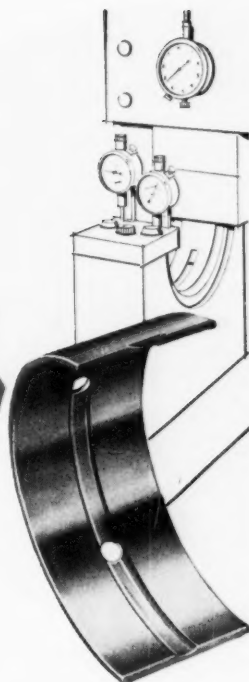
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3¼-yard ESCO coal loading dipper in pit of Sunnyhill Coal Company, New Lexington, Ohio. Shovel is a Northwest 80-D, with 22-ft. 6-in. stick.

## for Greater Profit!

**S**mart operators like Sunnyhill Coal Company are quick to use specialized tools which increase their production. For example, the ESCO coal loading dipper shown above is loading from 30 to 40% more coal than could be done with this machine using standard dippers. Made especially for loading coal, more of the shovel power is used for payload, less for moving the dipper itself.

Useless weight is eliminated.

Flat lip cleans up coal with minimum of dirt.

Long, sharp teeth placed close together to give easy digging, good cleanup.

### Built to Last on the Job

In spite of its light weight (the 3¼-yard bucket weighs only about 6,700 pounds), ESCO coal loading dippers are tough and durable. They are fabricated of alloy steel plate, with hinges, latching mechanism, teeth and tooth

holders cast of wear and shock resisting manganese and high alloy steel. A solid cast lip is formed by welding web-type tooth holders together.

### Detailed Information Upon Request

Let your nearest ESCO representative show you how these fast loading coal dippers will increase your production. Or fill in and mail the coupon. Electric Steel Foundry, 2179 N.W. 25th Avenue, Portland 10, Oregon; 728 Porter Street, Danville, Illinois. Offices in Pottsville, Pa.; Eugene, Oregon; Chicago; Honolulu; Houston; Los Angeles; New York City; San Francisco; Seattle; Spokane. In Canada, ESCO Limited, Vancouver, B.C.

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## **A lump of coal?** . . . Yes, a lump of coal!

For no one can foretell the great things still to come from this basic and abundant resource.

Already, almost 70% of all the fuels used by America's electric utilities is coal—and each ton of steel needs a ton of coal in its making. Coal supplies 45% of the heat for our homes, factories and public buildings. And coal is the "miracle" ingredient in thousands of useful new products—perfume and plastics, synthetic rubber and sulfa drugs.

Coal is fertilizer for our farms, cement for our buildings. Coal provides steam and electric energy which spin the machines in our factories.

*Today coal supplies power to make the good things that make up our good life. In the future, coal will make more products available to more people at the lowest possible prices.*

How fortunate there's coal enough to power America's progress for hundreds of years! For coal accounts for 92% of America's entire fuel reserves.

How fortunate that America's privately-managed coal mines are the world's most efficient! Equipped with the latest modern machinery, the American miner's output is 4 to 24 times that of any miner in Europe or Asia.


If you are responsible for choosing a fuel—to power a factory—to heat your home or other building . . . consider these important advantages of bituminous coal.

## **DOWN-TO-EARTH FACTS ABOUT COAL!**

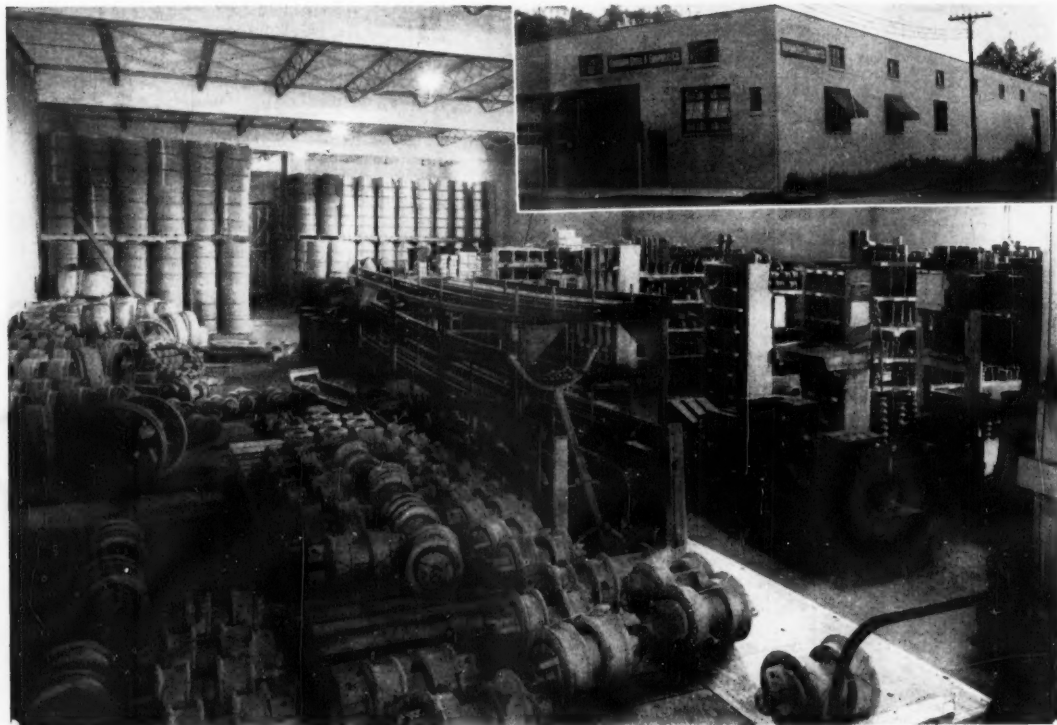
- ✓ Lowest-priced fuel almost everywhere!
- ✓ Modern automatic equipment cuts labor costs.
- ✓ Easiest and safest to store of all fuels!
- ✓ America's vast reserves make coal's supply always dependable!
- ✓ Dependable supply assures price stability!
- ✓ A progressive industry strives constantly to deliver an ever better product at the lowest possible price!

## **BITUMINOUS COAL INSTITUTE**

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# **YOU CAN COUNT ON COAL!**



## EQUIPMENT FOR COAL STRIPPERS

Pictured above is the new location in Charleston, West Virginia, of Kanawha Steel & Equipment Company where substantial stocks of replacement parts are kept at all times. These include:

**ELECTRIC STEEL FOUNDRY COMPANY**—ESCO parts for ESCO dippers and dragline buckets, ESCO cast manganese cutting edges and alloy blade ends for all makes of dozers;

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**TAYLOR-WHARTON IRON & STEEL COMPANY**—TISCO cast manganese dipper teeth for all makes and sizes of dippers; also crusher jaws and point bars, TIMANG welding rod.

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## Do You Know?

America's vast deposits of lignite give promise of becoming a valuable fuel with a new process revealed here by the U. S. Bureau of Mines that reduces it to a char of high heating value and at the same time yields crude coal tar from which many coal tar products can be obtained.

The process can be used to make valuable fuel and obtain coal tar products from the low-grade non-coking bituminous coal with which the western United States is well supplied. According to V. F. Parry, chief of the Bureau's laboratories here where the process was developed, it is applicable to any coal of lesser rank than high volatile bituminous B, a bracket that encompasses 90 per cent of all western coal.

The process, as described by Mr. Parry, consists in crushing the lignite or other non-coking coal into particles of one-quarter-inch or less in size. The material is then "boiled" at 350 degrees Fahrenheit in a fluidized dryer that uses the hot products of combustion or flue gas as the heating medium.

Then the hot dry fuel is moved to a carbonizing reactor, where it is burned with air at a temperature of 950 degrees Fahrenheit to extract the coal tar and obtain a char. The bone-dry char has a heating value about 50 per cent greater than raw lignite containing 35 per cent moisture. Also it has a weight of only 45 per cent of the raw lignite.

Raw lignite, known also as brown coal, is now mined and used in the United States in quantity approaching 3,000,000 tons a year. It is used, however, largely in regions relatively near where it is produced because it deteriorates rapidly in the air. As mined, it contains from 30 per cent to 40 per cent of moisture, and when dried in air it cracks and ignites.

The principal known deposit of lignite in the United States is in North Dakota and about two-thirds of that mined is produced in that state. South Dakota, Montana and Texas have considerable supplies. The new process will be given its first commercial application at a new aluminum smelting plant in Texas. The char obtained will be used to provide power to drive generators to make large quantities of electricity required in aluminum making.

Ocean liners, like airplane transports, are now controlled in part by automatic devices but by 1960 will be robot controlled from bridge to keel, the American Merchant Marine conference was told.

Electronic developments in marine design will usher in this age of automatic ships, the meeting was told by Maurice R. Eastin, Minneapolis-Honeywell Regulator Company, Minneapolis, Minn. Included among these developments will be automatic navigation devices, automatic boiler controls, master controls for propulsion machinery, and sensitive shipboard climate control for passengers, crews and cargo.

Crews will be somewhat smaller but more efficient as the robot devices will better the performances of manually manned ships, he stated. We are approaching the all-automatic ship, he added, not for labor-saving and comfort advantages alone but for greater efficiency and lowering of operating costs.

## Here and There in the Coal Industry

Alfred L. Howes, President of the Howes Mining Company, was reelected President of the Central West Virginia Coal Producers Association at its annual meeting and banquet at Clarksburg, West Virginia. Attorney John C. Southern is Secretary of this organization, which is composed of the smaller deep mine producers in Preston, Harrison, Upshur, Barbour, Marion and Taylor Counties.

The Coal Operators Association of Williamson Field elected Paul D. Ritter, of the Red Jacket Coal Corp., Red Jacket, West Virginia, its new President at its annual meeting held in Williamson, West Virginia, on Friday, October 26. At the same time, the Upper Buchanan Smokeless Coal Operators Association held its meeting. The business session, which lasted most of the afternoon, was presided over by Laurence E. Tierney, Jr., President of the Eastern Coal Corporation, Bluefield, West Virginia.

Other officers elected by the Williamson group were: J. M. Tulley, Vice President; I. D. McLaughlin, Treasurer, and Joseph J. Ardigo, Secretary.

Officers elected by the Upper Buchanan Association were: C. A. Hamill, President; J. W. Strickler, Vice President, and Joseph J. Ardigo, Secretary-Treasurer.

The Sheridan-Wyoming Coal Co., Inc., purchased the Arrowhead Coal Co., Denver, Colorado, on October 1, and will continue to mine Pinnacle Seam Moffat Coal from the Arrowhead Mine located in the Oak Hill district of Routt County, Colorado. The new owners of the Arrowhead Coal Co. plan an expansion program to increase production from the Arrowhead Mine to the fullest extent of the market requirement, availability of manpower, and availability of railroad cars required to move the coal from mine to destination.

On October 16 the new owners of Arrowhead Coal Co. acquired the Keystone Mine from the Keystone Coal Co. and assumed operation of the Keystone Mine on that day.

The new officers of the Arrowhead Coal Co., are: Walter J.

Johnson, President; C. M. Shott, Vice President; J. P. Bowen, Secretary; E. M. Thomas, Treasurer, and Gothard Bylund, Assistant Secretary. Operating Personnel are: C. M. Shott, Vice President in Chg. Operations; R. M. Medill, Manager of Mines, Dan Milosevich, Supt. Arrowhead Mine and Al Husted, Supt. Keystone Mine.

Announcement has been made by W. C. Page, Vice President of United States Fuel Company, that due to illness, Mr. S. J. Craighead has been relieved of his responsibilities as General Manager of the Company and has been appointed Consulting Engineer.

Mr. Page also announced the appointment of G. R. Watkins as Acting General Manager of the Company. Prior to his appointment, Mr. Watkins was Assistant to the General Manager.

Vernon M. Barnard, veteran of 27 years in the coal industry, has been elected vice-president in charge of operations of Lillybrook Coal Company, E. C. Minter Coal Company and Amiga Smokeless Coal Company, making his headquarters at Lillybrook, West Virginia.

A native of Frostburg, Maryland, Barnard moved to Northern West Virginia at an early age and settled in Morgantown, W. Va. He attended Morgantown Schools and finished his studies at West Virginia University in 1924. He served in the Navy during World War I.

Effective November 1, A. R. Matthews will become President of the Pocahontas Fuel Company, Incorporated, with headquarters in New York City. H. R. Hawthorne, who has been President since the death of O. L. Alexander a couple of years ago, has been elected Chairman of the Board of Directors and it is understood will devote his full time to the affairs of the company.

Mr. Matthews has resigned as President and a Director of Clinchfield Coal Corporation, which he has headed for several years. R. H. Hughes, Vice President and Chief Engineer of the Clinchfield Coal Corporation, will be in charge of the Clinchfield properties pending the selection of Mr. Matthews' successor.



Left: G. M. Thursby, V-P. Coal Div., U. S. Steel Corp., M. L. Affelder, V-P. Charge of Operations, Hillman Coal and Coke Co., Bill Jamison, Chief Eng., Jamison Coal and Coke Co., G. A. Shoemaker, Pres. Pittsburgh Coal Co.



Left: Charles B. Eaton, Pres. Greensburg Connellsville Coal and Coke Co. and Chairman of the meeting, Co. Jack Major, speaker of the evening, George Dyke, Pres. Mine Safety Appliance Co., Congressman A. B. Kelley, E. B. Winning, Asst. V-P. Operations, Republic Steel Corp.

## Annual Meeting of the Pittsburgh Coal Mining Institute

### Man Is Man Because He Bucked Gravity and Stood Up

The Annual Banquet of the Pittsburgh Coal Mining Institute was held at the Wm. Penn Hotel, Pittsburgh, Pa., Saturday, November 10. This is the largest gathering of coal mining men and women anywhere in this world, and it shows the great advancement in the caliber of personnel in this industry in the past quarter century. It is a

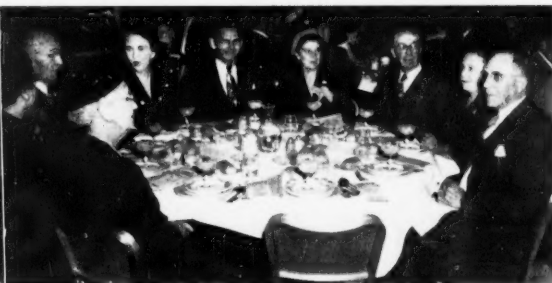
fine group of human beings where all feel they are on the same level.

The principal talk of the evening was made by Colonel Jack Major of Paducah, Kentucky. He spoke of the political predicament of our Nation, the high taxes and what he was doing about them, what might happen to this nation if it were attacked by atomic bombs, since

1/3 of the nation is growing the food to feed the other 2/3. In the event of atomic bombing those living in small isolated communities have a much better chance for survival. Ladies being present the speaker took advantage of the opportunity to advise them that recent surveys showed that 90% of our polio cases were bottle fed babies.



Left to right: J. A. Younkens, Mrs. F. M. Coprivnicar, Geo. E. Stacey, Mrs. J. A. Brooke, Mr. F. M. Coprivnicar, Mrs. G. E. Stacey, J. A. Brooke, Mrs. J. A. Younkens, J. E. Elkin and Mrs. J. E. Elkin. Mr. J. A. Brooke is general manager of Mather Collieries, all the others are officials of the mining dept. for the Duquesne Light Co.



Mrs. M. C. Cranch, Mr. and Mrs. Olin Conrad, Mine Inspector, Mr. and Mrs. Jos. Reitz, Manager mines, Republic Steel Corp.; Mr. and Mrs. E. A. Siemon, Div. Manager, Hillman Coal & Coke Co.; Mr. and Mrs. S. Guy Little, Penn Machine Co.

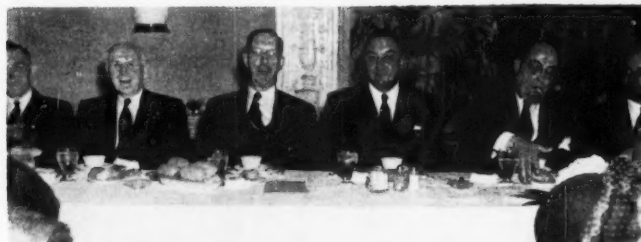


Left: Mr. and Mrs. Harold Lusk, Wilmot Engineering Co.; Mr. and Mrs. Howard Miller, Chief Engineer, Crucible Fuel Co.; Ruth Miller and Mr. and Mrs. Clarence Strong.



Left: James Conrad, J & L Vesta 4 Mine; Neal Moore, Supt., Ontario Mining Co.; Mrs. Neal Moore; Mr. and Mrs. Albert Armstrong, Ontario Mining Co.; Mr. and Mrs. J. T. Ryan, Jr., Mine Safety Appliance Co.; Mr. and Mrs. Clyde McDowell, J & L Vesta Mines; Mrs. James Conrad





Left: Richard R. Maize, Chief, Dept. of Mines of Pennsylvania; L. E. Young, Consulting Mining Engineer; K. L. Konnerth, President, H. C. Frick Coke Co.; W. G. Stevenson, General Manager, Hillman Coal & Coke Co.; Henry Rose, V-President operations, Pittsburgh Coal Co.



Left: H. C. Goodhart, V-P operations Westmoreland Coal Co.; J. B. Morrow, retired; Charles Maton, Sr., Greensburg-Connellsville Coal & Coke Co.

Living in small communities today, with radio, television, refrigerators, electric washing machines, etc., in many respects an advantage over living in large cities, other than being away from bombing areas. Rapid technical advances in mining coal will further improve living conditions for those who remain in that work. Future technological developments will call for highly skilled men who will demand and get the best of living conditions. High class centrally located communities will be built to serve automatically operated mines over comparatively large areas.

Our uppermost problem now is to start surrounding ourselves with the right kind of manpower to pro-

ject and operate the complicated gadgets and machinery that will be required to produce coal automatically. The best way to make a start at solving this problem is to understand why man is what he is today.

Man is man because he bucked gravity and stood up. The human brain was able to be developed to its present state because man's ancestors, some million or so years ago, dared to buck the force of this earth's gravity and stand upright for longer periods than any other living creature, according to a report of studies showing that the development of man's brain has come through the physiological changes forced on his body by the head-up position, by Dr. Sidney W.

Britton of the University of Virginia at a recent meeting of the National Academy of Science.

Man is the brainiest animal on earth today. His brain, however, was not developed primarily as a thinking organ. Man's brain has two super-animal activities. The first of these activities was use of the hands which he developed after learning to stand on his two hind legs and which resulted in manual skill. The second was logical thought acquired later by the acquisition of and use of language.

The capacity of the human brain has never been measured. So little has been done that we cannot judge human capacity by any precedence.

(Continued on Page 23)



Left: Mr. and Mrs. C. C. Virgin, Mr. and Mrs. Wiltsee, Mr. and Mrs. Wyant, and Mrs. Lawarus and J. C. Wyant, all officials of the Indianola Mine, Republic Steel Corp.



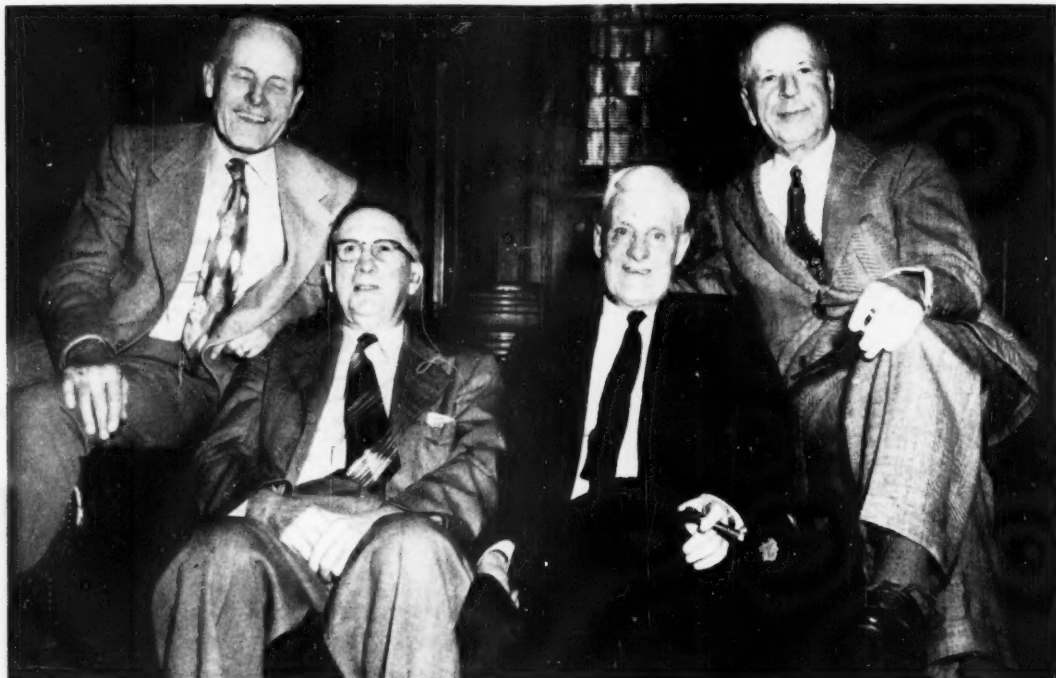
Left: Mrs. Charles Sontag, Jeano Bicego, Linda Bicego, Mr. and Mrs. A. Shacikowski, Mr. and Mrs. S. Shacikowski, Pete Montali, all of the Leechburg Mining Co. and Leo Dellafararo, Park Coal Co.



Left: Mrs. G. M. Thursby, Mrs. K. C. Konnerth, Mrs. E. B. Winning, Mrs. T. J. Crocker, Ella A. Ryan, Mrs. G. A. Shoemaker, Mrs. J. B. Morrow, Mrs. Henry C. Rose.



Mr. and Mrs. John Hunter, Mr. and Mrs. Harry Mathias, Mr. and Mrs. John Murtha, Mr. and Mrs. Raymond Bell, all officials of the Carpentertown Coal & Coke Co.



Left: R. M. Hess, V-P operations, The Morrisdale Coal Mining Co.; Richard Todhunter, President, Barnes & Tucker Co.; George Roberts, Div. Supt., Bethlehem Collieries Corp.; C. C. Dovey, Cambria Fuel Co.

## Average of 50 Years in the Coal Mining Industry

In the group of men shown above there is an average of 50 years work in the coal mining industry. Three of the older men started as trapper boys at very young ages. All have traveled the ladder of hard knocks and have seen many changes on their way up.

These men have seen great changes, not only in coal mining but in life as a whole. In another half century all coal will be produced automatically, by a fraction of the number of men employed today. Life will be much more exciting, much fuller. Bacteria and viruses will have been conquered in large part. Blood transfusion will not be an emergency but a way of replenishing normal blood proteins with macromolecules completely resistant to micro-organisms and car-

rying prosthetic groups to destroy detrimental factors.

Homes will be largely plastics and other synthetics, self-contained, sustaining a complete inner environment in the form of heating and refrigeration, air conditioning, insect and radiation controlled, communicating with one another by two-way radio and television. Piping will be plastic, roofing and siding will be coated fabrics.

Food supplies will be augmented by artificial photosynthesis which along with plant seed exposed to cosmic bombardment to give a tailor made plant and many new crops. Ground now agriculturally unprofitable will be made to produce good crops. Salt marshes will be sown with salt resisting plants. The salt seas will be made yield

chemicals in the form of magnesium, bromine and fresh water. Not only diamonds will be made from carbon but also a new set of crystals intermediate between diamonds and graphite.

Atomic storage batteries will furnish power for every day appliances in the home because ways and means will be known to emit only harmless alpha particles from present atomic energy, or Uranium, Plutonium and new elements will make up the packaged power plants for homes.

Startling sources of raw materials for industry, such as iron from the core of the earth without furnace treatment, atomic bombardment to yield stainless steel of any desired composition and nickel, cobalt, vanadium and chromium.



Left: D. J. French, gen. mgr., Farmers Engineering Co.; Bob Holt mig. rep.; Bert Berg, U. S. Rubber Co.; M. D. Cooper, National Coal Assn.; Joel Haverstick, Allis-Chalmers.



"Chief" Arentzen, Lee-Norse Co., Leo Schulte, Mosebach Electric & Supply Co.; M. S. Mawhinney, mfg. rep.; Arch L. Voight and A. H. Love.

## Two More Meetings of Western Pennsylvania Bituminous Golf Association

**Need for betterment of all phases of the coal industry.  
Humanity obtains more good than evil from discoveries.**

Gatherings of the golfing coal mining men in the Tri-State area of Western Pennsylvania, Ohio and Northern West Virginia continued through the month of August. Parties have been held at Nemacolin Country Club near Brownsville, Pa., on Thursday, August 9 and again at the Uniontown Country Club, Uniontown, Pa., on Thursday, August 30.

Like time changes other things, time made changes at these gatherings. Faces that have been present at almost all previous parties have not been seen this year. The morale of the groups has bettered considerably in the past five years.

In my way of thinking, these gatherings, and others like them, could be used to do more good. With the very urgent need for betterment in all the phases of the coal mining

industry, such gatherings as these could be used to disseminate the higher ideals of life and to advance the latest and the best methods of living and of mining. We need badly to advance the living conditions in most of the mining communities and to bring about higher thought standards throughout the industry to keep pace with technological advancements taking place throughout this world.

Our excellent health, our high skill and effective economical organization has put and kept us in the power position we are in. That circumstance coupled with our high industrial efficiency account for the fact that with only about six per cent of the world's population the United States produces almost half of the world's industrial goods. Our leadership in the future must be

based on technological advancement. This task is not going to be simple. It will require ever-advancing discoveries and humanity will obtain more good than evil from discoveries.

Nothing is more beneficial to the human race than the discovery of new truths by which the life of men is cultivated. As long as thinking men press their search for ultimate truth, theories will be superseded. The immediate problem is how best to find out. Finding out what will not do generally leads to finding out what will do. We need more research, set around outstanding men. We need individuals, more bred than born, for that kind will put his faith in an individual who cares little what he is doing as long as he is finding out.



Left: Ed Fish, Chicago Pneumatic Tool Co.; Harry Swihart, Martin Valeri and Don H. Dowlin of the Buckeye Coal Co.



Left: H. J. Lang, Industrial Electric Co., S. W. Charlton, Kaiser Aluminum Co.; E. F. Charlton, Connellsville Mfg. & Mine Supply Co., and J. M. Krese, Republic Steel Corp.



Left to right: Richard Maize, Secretary of Mines; Frank A. Whitsett, Counsel, Central Penna. Open Pit Mining Assn.; J. W. Wetter, President, Maderia-Hill Company; James George, Gen. Mgr., Ednie Coal Co.; Joe Saricks, Clover Run Coal Co.; next unidentified; Lew Lenz, Highway Equipment Company; Col. Mereenes, Baldwin, Lima, Hamilton Corp.

## Annual Field Day of the Central Pennsylvania Open Pit Mining Association



Left: J. W. George, Rock Hill Coal Co.; Gen. Wildemen, Bank of Barnesboro; Dick Todhunter, Barns & Tucker Coal Co.; Don Westover, Bank of Hastings, Pa



Left: Barney Lucas, Mining Engineer; Ralph Seward, Seward's Journal; Roy C. Kingig, Moshannon Falls Mining Co.; Lex Bailey, B & B Construction Co.; Lewis Stein, Elliott Coal Co.; R. L. Fye, McLanahan Stone Corp.; R. Rumbaugh and F. W. Kratzer of the Eastern Coal Assn.

The Annual Field Day of the Central Pennsylvania Open Pit Mining Association was again held at the Vets Lodge, about six miles north of Philipsburg, Pennsylvania. This year, like in previous years, refreshments were furnished by the Beckwith Machinery Company and lunch by the Moores Industrial Supply Co.

This day of relaxation is given by the coal strippers of this association to its employees and their friends. Golf is played at the Philipsburg Country Club, but since the golf course is removed from the other doings, golf is not played by as many as when the whole affair was held at the country club. This makes for an unnecessary indulgence in refreshments and an unpleasant evening to many guests. Since it was the intention to give this day to relaxation, no speeches have been made and one wonders if that is where the trouble lies. A speech on vital yet very important subjects could be made that do not tax too much the powers of mental concentration and that could be instrumental in keeping the crowd in better order at least until after the speech. Subjects such as:

"Today the world needs skills and talents to a greater degree than at any period in history."

"Greater the amount of individual freedom, with only necessary limits on business, the greater is encouragement and development of





Left: B. M. DuBois, Dubois Coal Co.; F. B. Wickersham, Att. at Law; Bob Cleveland, Cleveland Bros.; H. A. Cameron, Beckwith Machinery Co.; J. H. Dahlin, Rex Eaton, Cleveland Bros.



Left: F. A. Stoughton, Northwest Eng. Co.; Clyde Thompson, Thompson Coal Co.; John Noble and Paul Labe of Dravo-Doyle Co.

competition and more enlightened human value.

"There can be no question that Freedom is absolutely essential to our individual and national well being."

"Loss of material benefits of our competitive economy could bring the loss of essential human value that for generations have characterized the United States to people throughout the world."

"We have conclusively demonstrated that people with freedom to think and to plan go much farther. Based as they are on the right of men, proved through wars, revolutions and economic crises, our principles stand on results in material terms and in human values."

"Industry, agriculture, labor, professions and education have all gained from our American way of life, the American people have gained and so has the world at large gained."

These recommended subjects deal



Left: Bob Williams, Williams Coal Co.; J. H. Dahlin, President of the Assn.; Isaac H. Robinson, Robinson Coal Co.; Bill Smith, Williams Coal Co.



Left: V. W. Aubel, The Solvay Process Co.; R. D. Dalley, Walter Lobb of Lobb, Allayard & Caskey Coal Co.; William G. Williams of the Williams Coal Co. and Frank Williams of Equipment & Supplies, Inc.



Left: M. R. Evans, Div. Eng.; Francis Schragel, Mine Insp.; W. C. Fancourt, Chief Eng.; A. V. Little, Div. Eng.; all of State Dept. of Mines.



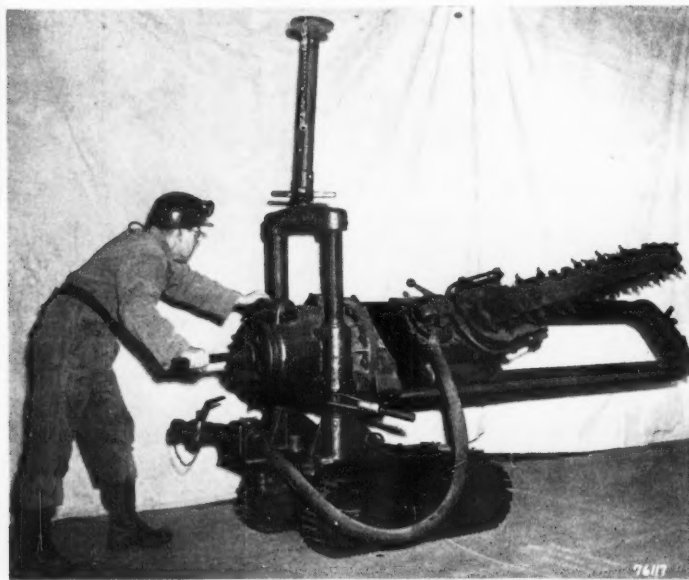
Left: D. L. Bauch, Foreman; D. H. Chipell, Foreman; R. D. Jones, Salesman; all with Putman & Green



Left: John E. Rice and James Murphy of Putman & Green; Ted Wood of Motter & Thompson and Jim Merritt.



Left: Gordan Dussinger and Bill Dickey of the Beckwith Machinery Co.; Ralph Kuhns, H & K Coal Co.; G. M. Stewart, Secretary of the Assn.



A U. S. Bureau of Mines employee demonstrates operation of a German-built coal-cutting machine which the Bureau brought to this country for testing in the anthracite region of Pennsylvania. Bureau engineers say the small machine, operated by compressed air, holds promise as a useful tool in certain mining work.

in economics and, maybe, politics, but the subjects are different and enlightening that should give relaxation to the mind. They should make the attendance feel like they got some good out of the time spent there so they do not go away feeling like they lost the day.

## SCHOLARSHIPS

in the

## SCHOOL OF MINES Columbia University

Several Henry Krumb scholarships are awarded annually to students who are candidates for the B. S., E. M., or M. S. degrees in Mining, Metallurgy and Mineral Engineering from Columbia. The value of each scholarship is \$1,000 per year together with the cost of transportation from the student's home or port of entry within the United States to New York City.

### Scholarships May Be Awarded To

Students qualifying for admission to Columbia College and registering for School of Mines undergraduate study.

Students from other institutions who are accepted for admission by the School of Mines and desire to pursue work for the B. S., E. M., or M. S. degrees.

### Application Procedure

Write to the Office of University Admissions, Columbia University, New York 27, N. Y., requesting application blanks and announcements.

Return applications accompanied by certified transcripts of academic records and supporting letters of recommendation in accordance with the directions on the form, before February 20.

• Twin Coach Company, Kent, Ohio, today announced acquisition of exclusive American manufacturing and sales rights to the complete line of Leyland Diesel Engines, produced by Leyland Motors Limited of England.

These will be sold in this country under the name of Fageol-Leyland and will be completely "Americanized" with SAE standard threads incorporated into the design of the engines as well as in all accessories and fittings. Engineering of American production engines will be handled by Fageol Products Company, Kent, Ohio, a Twin Coach subsidiary, which currently manufactures Fageol gasoline and propane engines.

## Leveal Coal Company Opens New Strip Mine

The Leveal Coal Company, pioneer coal producers from open pit operations, recently announced the opening of their new Bluebonnet Mine located at Checotah, Oklahoma, on the Missouri-Kansas-Texas Lines. This property has a modern preparation plant with coal washing capacity for the entire production.

As an indication of the Leveal Coal Company's belief in the future of the coal business in the Southwest, this new operation represents an investment in excess of one million dollars and will provide a potential production in excess of ten million tons which means assurance to coal consumers of a dependable supply of coal for many years to come.

The trade name of Bluebonnet was decided upon as a small measure of appreciation extended to the very fine railroad, i. e., the M-K-T, that serves the property and the producers feel very fortunate in having their mine located on a railroad that provides the splendid service which is so vital to a coal operation.

The president of the Leveal Coal Company, Colonel John H. Leveal, has been active in the coal business in Oklahoma and other areas for over thirty-five years and in his opinion, the Bluebonnet operation represents the latest in design and modern equipment for proper and careful preparation of coal to meet the exacting present market requirements.

The general offices of the Leveal Coal Company are located in Tulsa, Oklahoma, with sales offices at Henryetta, Oklahoma, the latter under the direction of Ellis Taylor, Vice-President, who has been with the company for the past fifteen years. The active management of the Bluebonnet mine is directed by Charles R. Towry, General Manager, and Harrill Burdett, Superintendent. These two gentlemen have had many years experience in producing and preparing coal suitable for the market into which Bluebonnet coal moves.

The unusual quality of Bluebonnet coal is confirmed by the following representative analysis:

Moisture	3.13%
Volatile	35.23%
Fixed Carbon	56.42%
Ash	7.50%
B.T.U.	13,885

The Bluebonnet mine is the only

coal mine in Oklahoma that supplies all domestic sizes, washed and oil treated for domestic use. The preparation plant and washing facilities at the Bluebonnet Mine were designed and built by George Arms, outstanding designing and preparation engineer.

As the result of friendly co-operation on the part of the Missouri-

Kansas-Texas Railroad, a rail outlet for the property was provided and is being served by the Katy via a six mile spur from the Katy's main line at Checotah, Oklahoma. The Bluebonnet mine is switched daily by the Katy and the production moves to coal customers located in Oklahoma, Texas, Arkansas, Kansas, Missouri, Nebraska.



Here is a scene of the box pit showing the steam coal loading shovel and dragline in operation removing the coal from the vein.

Iowa, North and South Dakota, Minnesota and Illinois. It is quite probable that this is the only coal property in the United States that is supplying its coal tonnage into such a wide area of consumption.

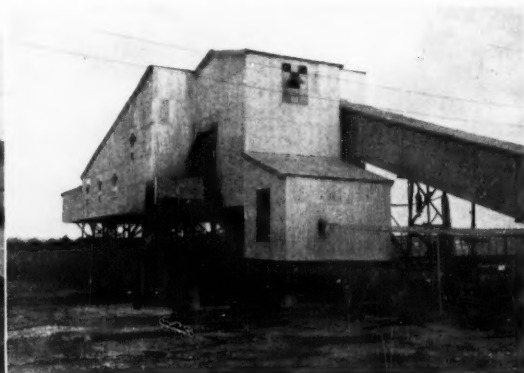
Bluebonnet coal is produced from

a seam averaging thirty inches in thickness and the overburden or cover on the coal will approximate thirty-five to forty feet. At present a seven yard dragline is being used to remove the overburden, however, plans are being completed to aug-

ment this production by the installation of a sixteen yard machine. The reason for the need of larger equipment has been demonstrated by the very favorable and wide acceptance by the coal trade of this new production.



One of the three six wheeler dump trucks ascends the ramp to dump the coal in the chute of the Bluebonnet Coal Mine. To the right is the reservoir for the water used to wash the coal.



A view of the preparation plant of the Bluebonnet Coal Mine—a strip mine near Checotah, Okla.—which opened recently. It is operated by the Leavell Coal Co.



#### CIVIL DEFENSE TRUCK MAKES DEBUT AT MINE RESCUE MEET

Making its first public appearance, this 22,000-pound demonstration truck—a product of the Federal Civil Defense Administration—was displayed Oct. 2-4 in Columbus, O., during the National First Aid and Mine Rescue Contest held under the auspices of the U. S. Bureau of Mines, National Coal Association, and United Mine Workers of America. The rescue-service truck will tour the country in order that state authorities may have an opportunity to inspect it preliminarily to purchasing similar units for their own civil defense training programs. It is reported that the Federal government has arranged for states to buy such trucks on a matching-fund basis providing they are to be used for first-aid training and education.



(Continued from Page 15)

Western civilization has reached its present state through centuries of struggle toward higher material techniques, toward ever-wider and more potent democratic procedures and better popular education. Contact with other cultures, rediscovered literature of ancients, led men to question further and further the voice of ancient tradition as well as that of contemporary authorities. Travel brought men new knowledge, new problems and opportunity for gain and adventure. Thus the stage has been set for the rise of present day science, but this rise has been at the cost of constant effort and contention with man-made as well as natural obstacles. Even yet in Western civilization persistent vigilance and endeavor are necessary in the defense of the honest search for truth and the teaching of it, be-

cause the findings of science that are of greatest significance for a deeper understanding of ourselves and of the universe are the most apt to arouse concerted opposition from powerfully organized groups representing established ideologies and institutions that the new knowledge might upset.

Hundreds of years ago, mathematics was believed to be of great value, but it is a different subject and was put off until the college years of a few of the more fortunate ones seeking a higher education.

Today mathematics and science are everybody's business. Without further progress in our scientific (engineering discoveries) our technology would reach a dead end.

We must constantly keep in mind the word LEARN. Learning penetrates a person's cells. Learning shows up in what a person is, what he does and what he knows. What

we seek in learning is freedom in thought and optimism, freedom of action—the dual basis for comprehension and discovery. We learn by being placed in learning situations. Sometimes the conditions of learning determine its effectiveness.

Since the ladies are with us on this occasion it might be well to say that the time has come for the study of science to be made a part of the curriculum in every school grade at every level. We have learned that the way to teach mathematics is to start with numbers in the kindergarten, arithmetic in the first grade and so on without interruption through algebra, geometry, trigonometry, calculus, etc. There should also be a class in science, starting in kindergarten and through high school and college, if we are to train citizens able to solve the technological and social problems confronting this world.



Left: Mrs. John H. Harper, C. Binaford Simms, Mrs. C. Binaford Simms, H. John Harper, Mrs. Arthur A. Waltenbaugh, Arthur A. Waltenbaugh, Mrs. and Mr. David H. Davis, Mrs. and Frank Strimlan.



Left: Geo. N. Truby, W. A. Albert, Emil Stresky, Linne Bochman, Robert E. Jones, John Hackett, Richard J. Walton, Arthur Hall, all of the mining department for West Penn Power Co.

• Cannon Vibrator Company announces that the new line of Cannon Style EM "Quiet-Type" Vibrators can now be furnished in 1 1/4" to 4" piston sizes. Ranging in weight from 9 to 140 lbs., they are used to prevent arching, hanging-up and sticking in bins, hoppers, chutes, etc.

Featuring a new principle of operation, Cannon Style EM Vibrators are unusually quiet in operation. Air-cushioned impact prevents all metal-to-metal pounding. The manufacturer states that this new principle eliminates bolt breakage, greatly reduces general maintenance and increases vibrator life. Also, since heavier pistons with longer strokes are used, these vibrators create an extremely effective pulsating and forwarding action.



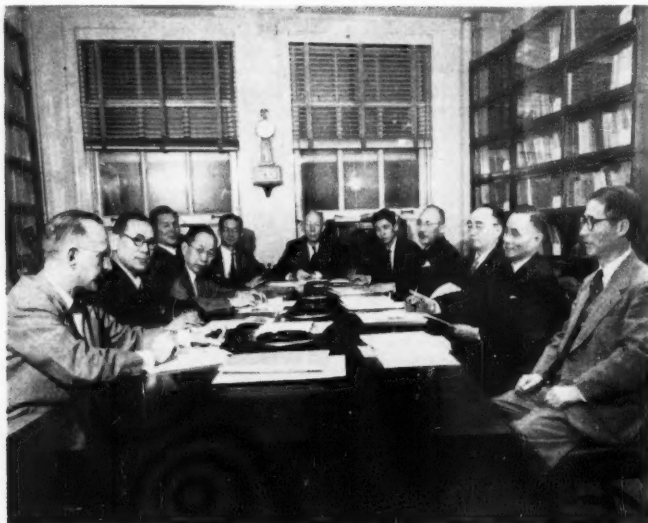
Full information on Cannon Style EM "Quiet-Type" Vibrators is

available on request to Cannon Vibrator Company, 1111 Power Avenue, Cleveland 14, Ohio.

• A new technical treatise on the use of silicone base materials to make masonry walls water repellent is announced by The Monroe Company, Inc., Cleveland 6, Ohio.

The bulletin contains a study of the water repellency problem and outlines the tremendous annual damage caused by absorption of water into masonry surfaces. It discusses preventive methods and emphasizes the newly developed use of silicones for this purpose. Test data is presented in simple, layman's language.

For copies, write The Monroe Company, Inc., 10703 Quebec Avenue, Cleveland 6, Ohio. Ask for Bulletin No. 126-11.



#### JAPANESE EXECUTIVES VISIT NCA OFFICES IN WASHINGTON

C. A. Reed, center, director of engineering of National Coal Association, Washington, D. C., is shown explaining American trade association activities to a group of Japanese industrialists who visited the NCA offices early in March. Left to right, are Earl R. Maize, NCA's director of safety, three Japanese executives; F. A. Groemping, U. S. Office of Internal Labor Affairs; Mr. Reed; the interpreter; and four Japanese industrialists.

● Presenting in clear question-and-answer form up-to-date information about effective roof control, a handbook, "Questions and Answers on Roof Support in Bituminous-Coal Mines," has just been published by the Bureau of Mines as a safety aid in its present campaign to prevent roof fall accidents. It is the second revision of Miners' Circular 31, published in 1928, and replaces that publication and Miners' Circular 40, published in 1939. The announcing statement says: "during the 10-year period 1940-49 inclusive, the publication notes, roof falls caused about half (49.8 per cent) of all fatalities in bituminous coal mines. Although the number of such fatalities has decreased gradually, the decline has not been proportionate with that in the number of fatalities due to a number of other causes. Noting that the prevention of roof-fall accidents requires the unremitting cooperation of top management, supervisors, and miners, the handbook incorporates the latest knowledge of effective roof-control methods gained by the Bureau and the industry. Roof-control methods adapted to mechanical mining receive special attention. Offering the know-how for minimizing roof-fall hazards in understandable language, the publication will be use-

ful as a text for use in accident-prevention classes and discussion groups as well as being a handy reference work for miners and mine supervisors. Numerous illustrations clarify the text, and its pocket size and wear-resisting covers make the handbook convenient to carry on the job."

Single copies will be furnished upon request to the National Coal Association and copies in quantity at actual cost of \$25.00 per hundred.

● ACTH, pituitary gland hormone that helps arthritis patients, is showing itself a relatively cheap as well as effective treatment for severe burns. Used to treat a patient with 70% of his body burned, it kept the cost of all treatment to \$1,500. Cost of conventional treatment for one patient with a 40% burn is \$4,000.

These figures are cited by Dr. M. James Whitelaw of Phoenix, Ariz., in his report to the Journal of the American Medical Association in Chicago of the now famous case of the young rancher with gasoline burns who was one of the first burn patients to get ACTH treatment.

Besides giving the comparative costs of treatment in dollars, Dr. Whitelaw gives the comparative figures for supplies and personnel as follows:

Needed to treat one man with 40% burn by conventional methods: 42 tanks of oxygen, 36 pints of plasma, 40 pints of whole blood, 104 pints of fluid, 2.7 miles of gauze, drugs such as morphine and penicillin, three nurses and two physicians.

Needed to treat one man with 70% burn with ACTH: no oxygen, 21 pints of plasma, one pint of whole blood, four pints of fluid, half a mile of gauze, one nurse and one physician.



Recently opened New Office Building of the Link-Belt Company, in the East End District of Pittsburgh, Pa.

• Speco, Inc., Cleveland, announces a new packaging program for Ice-Rem, ice and snow melting chemical compound.

The 10-lb. metal container has been redesigned and is now a metallic blue in color with an attractive, harmonizing blue label. Other improvements are announced in the 25-lb. pail and 100-lb. drum. Shipments of ton lots, as in the past, are packed in waterproof 100-lb. bags.

The thawing capacity of one pound of Ice-Rem is reported to be approximately 30 times that of salt. If used prior to the start of a snow or sleet storm, Ice-Rem will melt subsequent snows until its exothermic action is exhausted. The exothermic action of Ice-Rem (the heat generated by contact with water) is claimed to be 10 times as fast-acting as standard flake calcium chloride. These salient features of Ice-Rem were the reasons behind its being chosen as one of ten recipients of a 1951 Lewis & Conger Safety Award.

The manufacturer highly recommends Ice-Rem for use by motorists, and truck, bus and cab drivers. A handful thrown under each rear car wheel provides needed traction and stops wheel spinning. Great suitability is also claimed for thawing frozen gutters, pipes, sewers, railway switches, etc.

Speco, Inc., 7308 Associate Ave., Cleveland 9, Ohio.

• Fewer falling roofs, the greatest cause of fatalities of miners in coal and other mines, are promised with an explosive anchor to hold the bolts firmly in place after once set. Roof bolting is the modern method of preventing the roofs in mines from falling. The method is already in use in many mines, replacing in large part the older method of using timbers to hold up the roof.

In the bolting method, steel rods are driven up into the roof; or inserted in drill holes, to hold the roof structure together. For best results the upper ends of these rods or bolts must be anchored in the rocks so that they will have sufficient holding power. This invention provides an expendable upper end on each bolt, within which an explosive is placed. After insertion, the explosive is detonated by electric means, thus forming the anchor.

This invention brought patent 2,573,880 to Robert Temple, Swissvale, Pa. Rights are assigned to Temple Velocity Equipment, Inc., Wilmington, Del.



## Cleveland Brothers Equipped To Do Hard Surfacing Work

An automatic submerged arc welding process which applies a hard-facing alloy surfacing to crawler tractor rollers and idlers has been inaugurated by the Cleveland Brothers Equipment Company.

According to Ed Ryder, general parts and service manager for Cleveland Brothers, the hard-surfacing method will make it possible for idlers and rollers to give approximately as much service as the original equipment and will effect a considerable saving to the tractor owner over the purchase of new equipment.

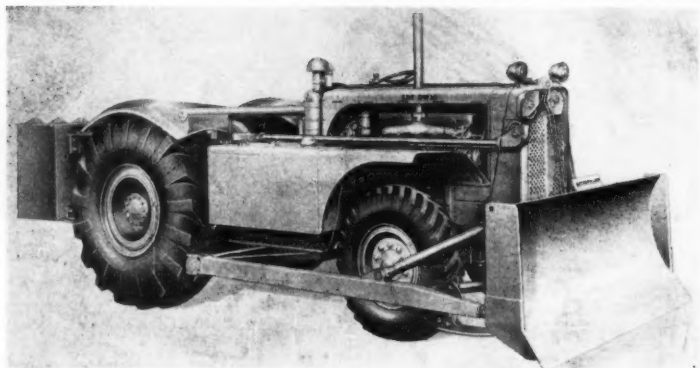
"In addition to the savings of money involved," Ryder pointed out, "there is also the important matter of conserving scarce steel and tractor parts." Work will be done on all types of crawler tractors and will not be limited exclusively to Caterpillar customers, Ryder said.

The process of hard-surfacing is a relatively new one, having developed first on the West Coast. Cleve-

land Brothers have purchased a submerged arc welder from the Leader Manufacturing Co., Berkley, Calif., and uses a special alloy rod, Stooddy 105, developed by the Stooddy Company, Whittier, Calif.

This rod is a hollow tube of mild steel with the various alloys held inside in powder form. As the hard-surfacing material is applied, it is flooded automatically with a special "melt" composed of silica and other ingredients. Rollers or idlers can be brought back to original size and factory specifications and as much as an inch of worn surface can be rebuilt. Flanges can be rebuilt in the same manner.

Cleveland Brothers service men received special factory training when Leader officials installed the machine in their Frankville shop. The machine utilizes a welding head manufactured by the Linde Air Products Co., New York, and that firm has made its facilities and experiences available to Cleveland Brothers in carrying on the new work.



◀ The Caterpillar No. 10S Bulldozer, a straight blade machine for use with the company's line of DW10 Tractors, is now being manufactured by Caterpillar Tractor Co., Peoria, Ill.

Similar in design to other Caterpillar Bulldozers, the components of the No. 10S Bulldozer include the blade, push arms and braces, hitch, sheave support and heavy-duty radiator guard, combination cable and sheave group.

The trunnions for the new bulldozer model are included in the weight box and frame group which differs widely from the company's track-type tractors.

This group is a substantial assembly, fabricated of heavy structural steel plate mounted in conjunction with the Caterpillar DW10 Tractor frame. The heavy-duty weight box and frame group not only provides support for the bulldozer trunnions at each side of the tractor, but includes a heavy box at the rear of the tractor to accommodate four counterweights.

The four counterweights weigh 7,000 pounds and are required to provide more traction on the driving wheels of the tractor. They are offered separately as an attachment.

The counterweight box is designed with a towing hitch, so that the tractor can also be used for drawbar purposes. The Caterpillar No. 21 Cable Control is used with the No. 10S Bulldozer.

• Effective November 15, 1951, the Goodman Manufacturing Company of Chicago established a new renewal parts warehouse at Harlan, Kentucky, to serve mines in South-eastern Kentucky, Southwestern Virginia, and Eastern Tennessee.

Mr. M. Curd Ferguson, a resident of Harlan, has been appointed manager of the new warehouse which is located on U. S. Highway 119 at the L & N Railroad Crossing, P. O. Box 312, Phone 416.

• "With Rod and Transit" a biography of the engineer Thomas S. McNair, a Pennsylvania engineer of canals, railroads, reservoirs and coal mines in the Appalachian Mountains, by James B. McNair has just come off the press. Copies can be had by writing to James B. McNair, 318 South Ardmore Ave., Los Angeles 5, Calif.

**USERS**  
*Report*  
**MORE LIGHT**  
and  
**LONGER**  
**BULB LIFE**  
with the



**S** **SCHROEDER BROTHERS** **S**  
MINE LOCOMOTIVE HEADLIGHT

**YOU** WANT FAST HAULAGE  
MUST HAVE SAFETY  
NEED GOOD LIGHT

The SCHROEDER BROTHERS HA-1 Cast Steel Headlight is designed to withstand the constant shock of Mine use. Steel Clad Resistor units have been carefully engineered for varying voltages, to insure long Bulb Life

#### AIR AND ELECTRICAL EQUIPMENT

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ELRECO LINE MATERIAL OLIVER ROOF BOLTS

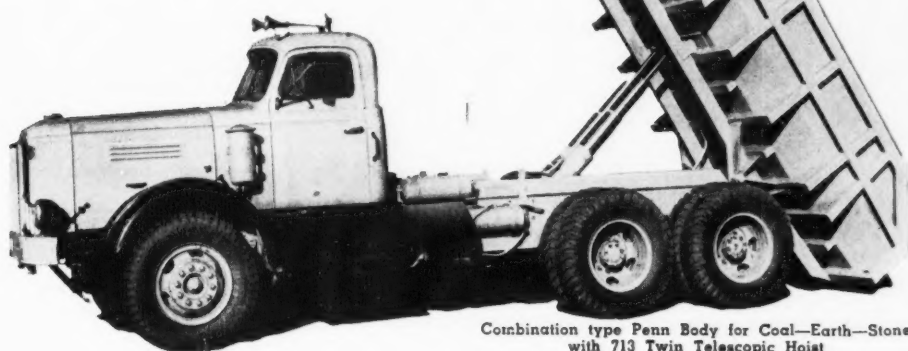
AMERICAN AIR FILTER DUST CONTROL  
DRILL BIT & TOOL CO. Throwaway Bits and Steels.  
RELIANCE ELECTRIC & ENGINEERING CO.  
SCHROEDER BROTHERS CONVEYOR SWITCHES  
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**TIME and**

**MONEY Saver**



Combination type Penn Body for Coal—Earth—Stone  
with 713 Twin Telescopic Hoist

**PENN**

- TELESCOPIC HOISTS
- STEEL DUMP BODIES

Over the years Penn Dump Bodies have earned an enviable reputation for long body life with a minimum of maintenance cost. Ruggedly constructed of steel and adequately reinforced, Penn Bodies are built to withstand the wear and tear of loading, hauling and dumping.

Body shown here is designed for all-purpose hauling. A time and money saver, it can be used for "dozing"—eliminating an additional piece of equipment. Boasting a capacity of 10 cu. yds. of

**for Coal and  
Overburden Hauling**

earth, stone or boney it can be quickly converted, by means of steel extension sides, to handle 15 cu. yds. of coal.

Penn Telescopic Hoists are tough, durable, efficient. Simple in design—smooth and powerful in operation, Penn Hoists have no small pistons or working parts to wear, bend or twist under heavy loads—lifting power is applied directly to the load without the use of cams, levers, arms or rollers.

**SPECIFY PENN STEEL DUMP BODIES . . . Send for catalog.**

**PENN BODY DIVISION**

**HOCKENSMITH CORPORATION**

**PENN, PA.**

**TELEPHONE: JEANNETTE 700**



## S & A FULL BEARING MANGANESE CHAINS

All links poured at one time from one heat of steel, insuring a chain of uniform analysis and heat treatment.

Designed for heavy service in all sizes.

## MANGANESE WEDGE BARS

For repointing Excavator and Shovel Bucket Teeth.



## McCLURE EQUIPMENT COMPANY

Phone: Court 1-5225

Jenkins Arcade

Pittsburgh 22, Pa.

• Link-Belt Speeder Corporation, shovel-crane manufacturer, announces that Mr. Kenneth T. Rudd has been elected Treasurer, with headquarters in Cedar Rapids.



Mr. Emery A. Freeman continues as asst. treasurer and credit manager of Link-Belt Speeder Corporation, with headquarters in Cedar Rapids.

• J. A. Jeffrey, Vice President and Manager, Conveyor Division, The Jeffrey Manufacturing Company, Columbus, Ohio, recently an-

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on repair and replacement parts  
for your

## MINING EQUIPMENT!

Our completely integrated foundry, machine and fabricating shops are your assurance of quick, efficient service.

## FORT PITT Mining Equipment NEW • REPAIRS • PARTS

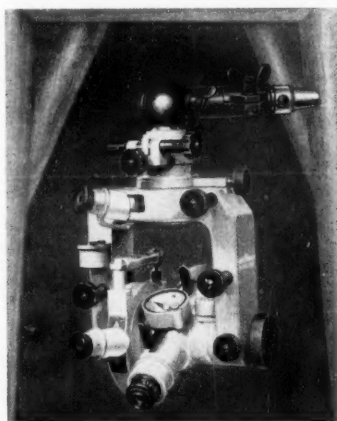
We manufacture: Hoists - skips - cages - coal, slate and rock larries - rotary dumps - conveyors - coke oven and tipple equipment.

**Connellsville Manufacturing and  
Mine Supply Company**  
CONNELLVILLE PENNSYLVANIA

*Serving the Mining Industry Since 1901*

## NEW EQUIPMENT

• Developed for inaccessible places, the new Breithaupt suspension type transit can be used where tripods cannot be taken. Transit and signals are suspended from rock or timber. It can also be used on



standard tripod. Vertical and horizontal circles 2 3/4 inches in diameter have reading accuracy of 1mm aperture and 25-power magnification. It is fully enclosed and dust proof and is sold in the U. S. by the Columbia Technical Corp., New York 22, N. Y.

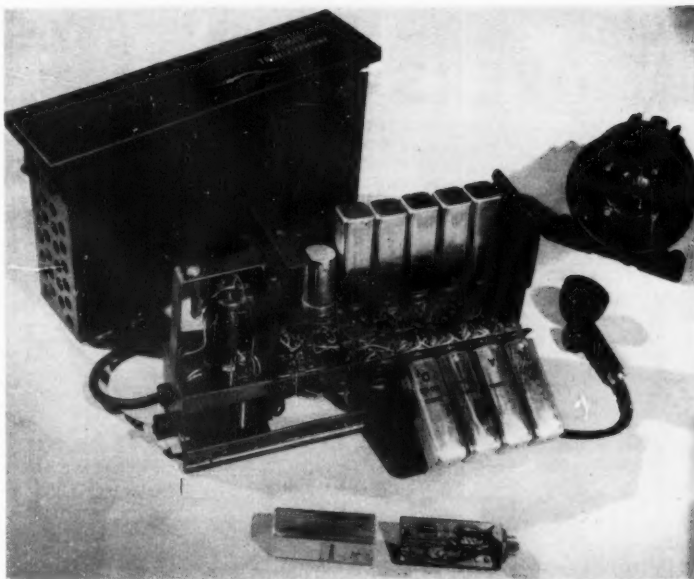
nounced major changes in the industrial sales organization.

Lincoln Kilbourne, formerly Manager of Sales, Products Engineering Division, becomes Manager of Sales, Conveyor Division. C. G. Hawley, District Manager of the Jacksonville office, replaces Kilbourne. L. Cole, Sales Engineer in the Columbus territory, has been named Manager of the Jacksonville office, replacing Hawley.

Paul Lawall, formerly District Manager of the New York office, returns to the home office in Columbus as Manager of Sales, General Engineering Division. R. W. Sweitzer, District Manager of the Philadelphia office, takes over Lawall's job in New York. W. K. Myers, District Manager in Boston moves to Philadelphia and will be in charge there. Paul Hendry, who has been working out of the Milwaukee office, becomes District Manager at Boston.

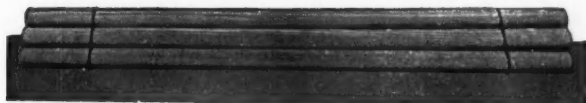
Dan Knies and A. W. Lemmon have been named Consultant Sales Engineers of the Conveyor Division in Columbus.

The Jeffrey Mfg. Co. is a major manufacturer of Mining, Material Handling and Processing Equipment.



The new design Femco Trolleyphone showing transreceiver with one bank of its "packaged circuit" tilted out ward and a demounted plug-in component opened below. Upper right: loudspeaker and press-to-talk microphone.

- The latest development in coal mine communications — a new type Femco Trolleyphone — should be a boon to harassed mine men now charged with meeting high production schedules for Na-



#### WOOD TAMPING POLES

For Tamping Explosive Shots: Poles are round made of Hardwood. Sizes to 10 ft. long.

1" Dia.	.....	8c per lineal ft.
1 1/2" Dia.	.....	12c per lineal ft.
1 3/4" Dia.	.....	14c per lineal ft.
1 7/8" Dia.	.....	16c per lineal ft.
1 3/2" Dia.	.....	18c per lineal ft.
1 5/8" Dia.	.....	20c per lineal ft.
2" Dia.	.....	32c per lineal ft.

Special diameters and lengths can be furnished. These Poles meet the requirements of the New Federal Mine Safety Code.



#### SECTIONAL TAMPING POLES

These Poles are made of straight grained wood and are coupled together with removable wood pins held in place in recessed grooves by a rubber band and can be quickly connected and unconnected.

Couplers and Head Blocks are 4, 5, and 6 inches in diameter. Please specify size when ordering. Poles are 1 1/2 inches in diameter.

Head Blocks	.....	4" Dia.	.....	\$1.70 Ea.
Couplers	.....	4" Dia.	.....	\$3.90 Ea.
Poles	12 ft. long	1 1/2" Dia.	.....	\$4.20 Ea.
Poles	14 ft. long	1 1/2" Dia.	.....	\$4.50 Ea.
Poles	16 ft. long	1 1/2" Dia.	.....	\$4.80 Ea.
Poles	18 ft. long	1 1/2" Dia.	.....	\$5.10 Ea.
Poles	20 ft. long	1 1/2" Dia.	.....	\$5.40 Ea.
Poles	22 ft. long	1 1/2" Dia.	.....	\$5.70 Ea.
Poles	24 ft. long	1 1/2" Dia.	.....	\$6.00 Ea.

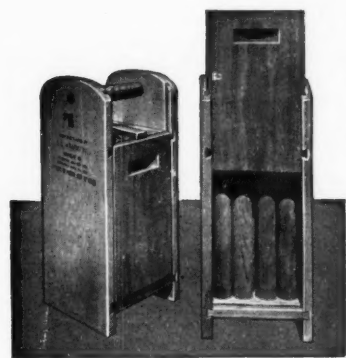
**EXPLOSIVE BOXES:** Made entirely of wood having no metal parts, tongue grooved and dovetailed construction with automatic lock using a rubber band for a spring, treated with paraffin to make moisture resistant. "Approved by the Pennsylvania Department of Mines." Sizes as listed based on 1 1/2" x 8" sticks.

#### Powder Box Prices are as follows:

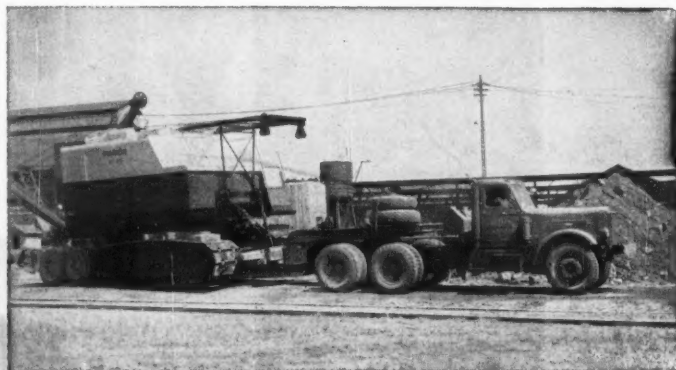
No. 9 Powder Box	.....	\$2.55 Ea.	No. 25 Powder Box	.....	\$5.10 Ea.
No. 12 Powder Box	.....	2.95 Ea.	No. 36 Powder Box	.....	6.50 Ea.
No. 16 Powder Box	.....	3.45 Ea.	No. 50 Powder Box	.....	7.60 Ea.
No. 20 Powder Box	.....	3.90 Ea.	No. 72 Powder Box	.....	8.70 Ea.

#### Detonator Box Prices are as follows:

No. 6 size 2 1/2" x 3" x 6" inside	\$2.15 Ea.	No. 8 size 2" x 2 1/2" x 8" inside	\$2.15 Ea.
------------------------------------	------------	------------------------------------	------------



## MOVERS of Coal Stripping and Contractor's Equipment



## HEAVY HAULING RIGGING

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### TWO LOCATIONS

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STAR LIGHTWEIGHT ALUMINUM  
JACKS FOR ROOF TIMBERING  
and  
SAFETY POST WORK

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## INCREASE YOUR PRODUCTION

with  
DALY'S IMPROVED COMBINATION MINE CHECK  
*The Only Satisfactory Check on the Market Today*  
**DALY TICKET CO., Collinsville, Ill.**

tional Defense as well as the civilian economy.

Featuring "packaged maintenance" the new design Trolleyphone has its FM carrier circuit "packaged" in plug-in components for quick change — by anyone — in case of communication interruption. No technicians are needed; anyone can serve the new unit by replacing plug-in components with numbered spares until communication is resumed.

Loss of contact while awaiting a technician sometimes results in slowing or halting of production operations if the mine management has high safety standards.

Realizing that technicians are always in short supply, the Trolleyphone's maker, the Farmers Engineering and Manufacturing Company, of Pittsburgh, has for some years been working on the answer to this type of production loss.

Using no signal wires, the Trolleyphone operates by feeding FM carrier current into the mine power system. Heart of the unit is the transreceiver containing the resistors and circuit — now "mechanical" in makeup by using ten convenient component parts units that plug into octal sockets like radio tubes.

Trolleyphones have been found to be particularly valuable in maintaining constant contact between mine mouth and face, between dispatchers and locomotive operators whether on the move or stationary, at loading points, — in fact anywhere in the mine that instant contact is necessary for safety and highly efficient production.

And, since they carry two-way talk over existing mine power circuits, whether a-c or d-c current, they can be used on "any-

## SALEM "HERCULES" AUGERS FOR ELECTRIC DRILLS

Made To Withstand High Drilling Speed, Whip And Torsional Strain Of Electric Drills

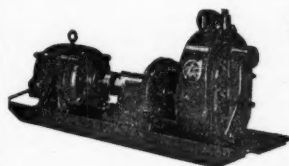


Drills holes faster — Will not snap off shank or chip points — Outlasts four or five ordinary augers.

THE SALEM TOOL COMPANY

SALEM, OHIO, U.S.A.





## MARLOW SELF-PRIMING CENTRIFUGAL GATHERING PUMPS

Complete Line Carried in Pittsburgh Stock. Tel. HU 1-4400

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PUMP AND SUPPLY COMPANY

Brady & Sidney Sts.

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## "SUPERIOR" COUPLING LINKS

Drop Forged, Electric Welded, Fire Welded  
A "Superior" line of Mine Car Couplings of all sizes  
various types—All sizes, 7/8 in. & larger  
Shackles—Cutter Bits—Bit Steel

**PITTSBURGH KNIFE & FORCE CO.**

1421 Reedsdale St., Pittsburgh (12), Pa.

thing that has a wire on it." They are designed to operate with the usual fluctuations of line voltage experienced in a mine.

The entire set now weighs but 50 pounds and consists of shock-mounted transceiver in a heavy case, loudspeaker and press-to-talk microphone.

Thirty pounds lighter than formerly, 50 percent more compact with elimination of the resistor box, and more effective with its new circuit and plug-in components, the new design Trolleyphone is tailored to the needs of the individual mine operation and has the ability to withstand the most severe vibration during rugged mine use.

- Link-Belt Company announces that it has opened a new Factory Branch Store at 108 South Fourth Stret, Salt Lake City 1, Utah, in order to better serve the mines, mills, and factories in Utah, southern Idaho and eastern Nevada with their power transmission and materials handling machinery requirements.

The new Store and Sales Office is headed by Donald W. Newsome, district manager, an engineer transferred from the Company's San Francisco Plant. He will be assisted by Harry Hotchkiss, who until recently was on the staff of the Link-Belt Store and Warehouse in Spokane, Wash.

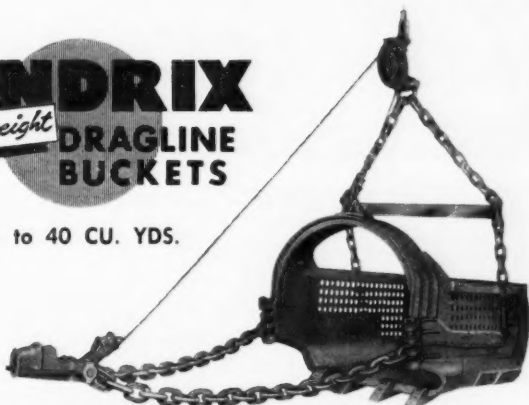
- A new style compression pipe coupling which practically eliminates turbulence at the joint is being manufactured by the Morris Coupling & Clamp Company of Ellwood City, Pa. More than a year's testing and service in the field has proved the coupling's ability to materially reduce electrolytic corrosion and turbulence at pipe joint. Its contribution to coupling effi-

TYPE "HS" . . . Heavy Duty

## COAL STRIPPER

**HENDRIX**  
*Lightweight* DRAGLINE  
BUCKETS

3/8 to 40 CU. YDS.



## LOWER MAINTENANCE— —HIGHER PROFITS

Hook-up a Type "HS" Hendrix Dragline Bucket for coal stripping at lower cost per yard . . . more yards per minute! The Heavy-Duty Hendrix "HS" gives unsurpassed performance with minimum maintenance costs and delays resulting in **BIGGER PROFITS ON EVERY STRIPPING OPERATION!** A full load . . . smooth operation . . . clean dumping with less stress and strain on your dragline **PLUS** long life in heavy-duty service. **THAT'S THE HENDRIX HEAVY-DUTY "Coal Stripper!"**

Call or contact us for additional information on the Hendrix "HS" Coal Stripper available with or without perforations.

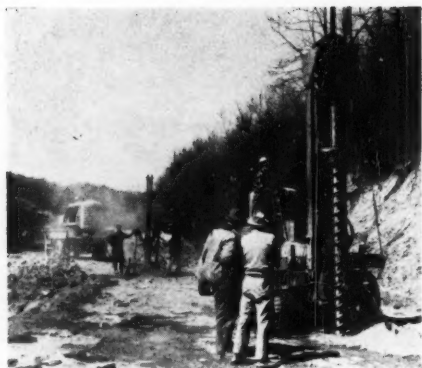


# DRAVO • DOYLE COMPANY

2601 PREBLE AVE.

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PITTSBURGH 33, PA.



## McCARTHY VERTICAL DRILLS from GREEN!

This McCarthy Vertical Drill is shown on the Ben Construction Co. job for the Westmoreland County Water Authority . . . Hundreds of these rugged tools are in use on rock work, strip mining, road building, quarry and construction work . . . Let GREEN give you full details on time saving applications of this machine to your own jobs!

# A.T. GREEN

## MACHINERY COMPANY

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## COAL PRODUCTION INCREASED BY PERSONALIZED SERVICE . . .



Coal Operators Casualty Company through personalized services and engineering facilities can prove beneficial to your operations. These services result in increased production, equipment savings, lowered accident frequency and security.

In addition, prompt claims handling and effective rehabilitation of the injured promote personnel harmony and greater production efficiency.

**COAL  
OPERATORS  
CASUALTY  
COMPANY**  
GREENSBURG, PA.



ciency in these regards is now established.

The Morris Company describes the new coupling in detail in a 4 page bulletin available free of charge to coupling users. The coupling is made up of three parts: (1) a gasket made of the material best suited to give protection for the specific job application, (2) steel inner sleeve with precision die-cut teeth placed eccentric to the gasket teeth to form a complete seal when the outer shell is tightened, and (3) steel outer shell made of zinc coated steel or corrosion resistant metals when required, with zinc coated washers, bolts and nuts.

The Morris coupling is made in sizes from 1/2" to 14" standard pipe sizes, including intermediate tube sizes. It will couple ferrous to ferrous or ferrous to non-ferrous materials. It couples threaded to non-threaded pipe as easily and safely as threaded to threaded. Usefulness for the coupling can be found in every major industrial, agricultural, commercial, institutional pipe line operation where liquids or semi-solids are to be carried under low or high pressure. Described also in the bulletin are Morris Pipe Repair Clamps designed for fast, emergency service.

A copy of this Technical Bulletin may be obtained by writing this publication or writing the Morris Coupling & Clamp Company direct at P. O. Box 632, Ellwood City, Pa.

• An engineering and sales division devoted to their Keystone rivetless chain has been established by Wilmot Engineering Co. of Hazleton, Pa. Along with a regrouping of the engineering staff, to facilitate the handling of conveyor and elevator engineering problems, the following district sales representatives have been appointed:

Harold C. Lusk, 3045 W. Liberty Ave., Pittsburgh 16, Pa.

Cross Pump & Equipment Co., P. O. Box 889, Charleston 23, W. Va.

Crowell Engineering & Sales Co., 3045 Sutherland Ave., Knoxville, Tenn.

Jack Van Horn, 1193 Claytonia Terrace, St. Louis 17, Mo.

Amos A. Culp, 930 Second Ave., North, Birmingham 4, Ala.

International Manufacturing & Equipment Co., 220 Broadway, New York 38, N. Y.

The designers and originators of rivetless chain, Wilmot Engineering Co., established by the late George W. Wilmot, has been manu-

facturing this type chain since 1907. The line, which included drop forged chain in a wide range of sizes and attachments, was recently augmented by the introduction of a line of cast chrome-manganese steel chain.

It was learned from George L. Wilmot, President, that the establishment of the new chain engineering and sales division of Wilmot Engineering Co. followed an extensive program of rearrangement of the firm's foundry, machine shop and patternmaking facilities at White Haven, Pa. This was in charge of the industrial engineering firm of Hubbard, Dilley & Hamilton of New York City. General sales management of Wilmot is headed by Harold R. Middleton. Carl S. Jenkins is chief of the engineering department, located at the White Haven plant.



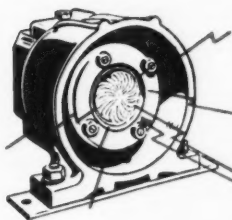
• Highway, heavy construction contractors, and quarry operators, now have available for their use the New Standard Model 365 air compressor, manufactured by The Jaeger Machine Company, Columbus, Ohio, and featuring Diesel power by Cummins.

The new compressor, rated at 365 cubic feet of air per minute at 100 pounds per square inch pressure, utilizes a 165 hp Model HRBI-600 Cummins Diesel, made by Cummins Engine Company, Inc., Columbus, Indiana, for its power plant. Engine operating speed of the Diesel-compressor unit is 1240 RPM.

LeTourneau Equipment  
Practically all Models  
RENT or SALE

**DRAYO-DOYLE CO.**

2601 Frobie Ave., PITTSBURGH 33, PA.

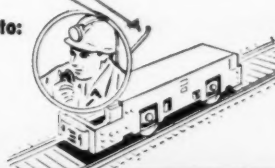


*Talking Bigger  
Mine Profits!*

The talking you do over Femco Trolleyphone means bigger mine profits. Trolleyphone two-way communication gives you instant contact—and control—of every moving car and every operation in the mine. Exercises your supervision at the point where profits are made.

Supervise your mine by Trolleyphone to:

- Produce more coal
- at less cost
- with greater safety
- for larger profits!



## FARMERS ENGINEERING AND MANUFACTURING COMPANY

549 BRUSHTON AVE., PITTSBURGH 21, PA.  
Specialists in Electronic Communications Underground

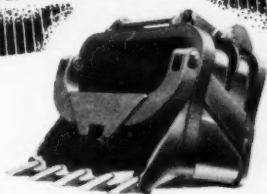
**Femco**  
TROLLEYPHONE  
"It Speaks For Itself"

## Big Producer...

The MAMCO Dipper

For Cleaner Coal—

Faster Loading—Larger Capacities



CHECK THESE OUTSTANDING FEATURES:

- ✓ Wide mouth, shallow body for low coal seams
- ✓ Flat lip and long sharp teeth—parts coal at seam
- ✓ Tapered body with larger opening at the rear for quick dumping
- ✓ Tough, rolled steel plate body—lighter in weight—greater in strength
- ✓ Cast manganese steel lip with inserted manganese steel tooth points—for greatest resistance to shock and abrasion
- ✓ All welded construction—no rivets to work loose

Capacities up to 7 Cu. Yds.

Write today for data sheet on Mamco dippers. No obligation.

**MAXIMON MACHINE CO.**

ALTOONA, PA.

MATERIAL HANDLING EQUIPMENT  
COAL PREPARATION PLANTS — OPERATING SUPPLIES

Let Us  
Solve  
your  
DRILLING  
PROBLEMS!

**DIAMOND CORE DRILLING**  
BITUMINOUS COAL LANDS  
TESTED... SATISFACTORY  
CORES GUARANTEED  
**HOFFMAN BROS. DRILLING CO.**  
Punxsutawney, Pa. Call 382

"WE LOOK INTO THE EARTH"

**CORE DRILLING**

- Coal Property Testing
- Pre-Grouting Mine Shafts
- Mine Drainage Bore Holes
- Large Diameter Holes for Ventilation & Escapeways

**PENNSYLVANIA DRILLING CO.**  
PITTSBURGH 20, PA.

**DRAGLINE BUCKETS**

**Geo. L. Wilson & Co.**

Office & Warehouse • 310 Mendota St. • Pittsburgh 12, Pa. • CEDAR 1-7710

Self-Priming Centrifugal *Pumps*  
for Gathering Service

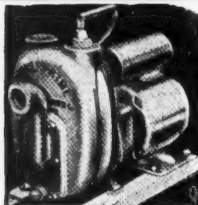
PUMPS — MACHINERY — SHOP EQUIPMENT



**Tranter**

**MANUFACTURING COMPANY**

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Cap. 3,000 to 200,000  
G.P.H.  
Engine or Motor Drive

**SPECIAL BARGAIN**

3—Type A3G Goodman Duck bills.

**COAL DRILLS**

2—Jeffrey—250 v. D.C.

**COMPRESSORS—SPECIAL BARGAIN**

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1	200	Westinghouse	720
2	200	Westinghouse	1200
1	100	Westinghouse	700
1	100	General Electric	900
1	100	Westinghouse	600
1	100	General Electric	1800
1	100	Reliance	680
1	100	Delco	1200
2	90	Westinghouse	680
4	75	Westinghouse	720
1	75	Westinghouse	1200
1	60	Westinghouse	1200
1 NEW	50	General Electric	1800
3	40	Westinghouse	900
2	30	Westinghouse	720

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1—100 kw. G.E. 125 v. 900 rpm. 220/440 v.  
3 ph. 60 cy. AC Sys.  
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3 ph. 60 cy. AC.  
1—75 kw. West. 125 v. 1200 rpm. 220/440 v.  
3 ph. 60 cy.

No.	D.C. Generators—250 v. D.C.	Speed
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1	175 G.E.	700
3 NEW	135 G.E.	1150
1	125 West.	850
1	125 Allis-Chal.	1150
1	110 West.	700
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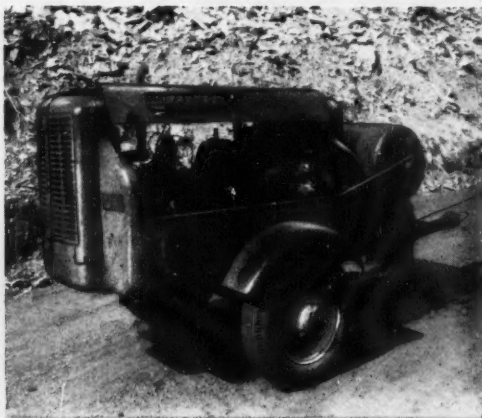
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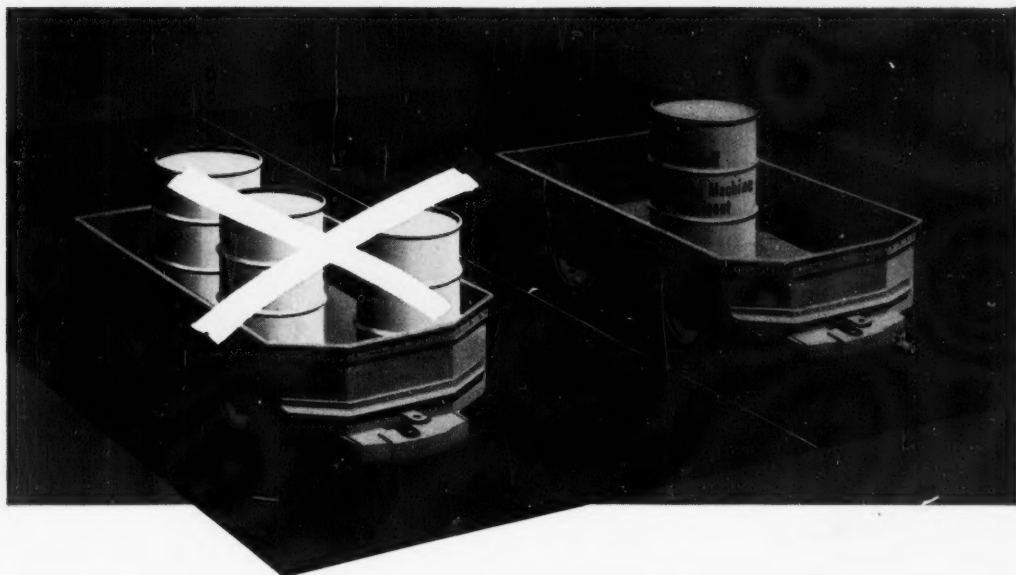
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